

DEPARTMENT OF THE ARMY
Missouri River Division, Corps of Engineers
P. O. Box 103, Downtown Station
Omaha, Nebraska 68101

MRD-R 1110-1-7

MRDED-L

MRD
Regulation
No. 1110-1-7

25 January 1977

ENGINEERING AND DESIGN

Samples of Liquid Materials to Missouri River Division Laboratory

1. Purpose. This regulation prescribes suitable procedures for submitting samples of liquid materials to the Missouri River Division Laboratory.

2. Applicability. This regulation is applicable to all elements submitting liquid materials to the Missouri River Division Laboratory.

3. Shipment. The shipment of samples of liquid materials for testing requires careful consideration for the following reasons:

a. To prevent contamination by the container. If samples of liquid material are shipped in containers that are unsuitable either because they are dirty or composed of another material that reacts with the sample, the sample will be spoiled for testing and the time necessary for resubmittal may result in a delay.

b. To prevent breakage of the container, with the resulting loss or contamination of the sample. This would again require re-submittal of the sample with a resultant delay. This may also precipitate a complaint from the Post Office or other transportation agency to the effect that leakage of containers has resulted in damage to other items for which they are responsible.

c. To permit easy removal of the sample from the container. An example of difficult removal is when bituminous materials have been heated in order to fill the container but which subsequently solidified upon cooling, thereby making it necessary for the Laboratory to destroy the container in order to remove the sample. Another example is the shipment of paints in a container with a small opening so that the paint cannot be adequately stirred and mixed in order to remove the entire sample in the proper proportions.

4. Containers. Suitable containers and the preparation thereof for the three types of liquid materials most frequently submitted to the Missouri River Division Laboratory are discussed below:

a. Paints. It is desirable whenever possible to ship samples of paint in the original container. Where this is not possible, the material to be sampled should be well mixed and stirred in accordance with procedures adequately covered in other publications and a sample not less than one quart in size should be placed in a suitable metal container. The recommended container is a one-quart friction top can. Care must be taken in the selection of the can to make sure that the lining will not be affected by the sample, thereby resulting in contamination. The lid may be fastened securely by any of three recommended procedures: (1) four or more springclips of suitable design; (2) Post Office approved type of can sealer; or (3) sealed at three points 120° apart using a spot of solder. Solder around the entire circumference, however, requires considerable heat be applied for removal, and might prove dangerous or affect the sample in the case of paints containing a considerable amount of solvent.

b. Water. Water for potable or environmental purposes should be sampled, preserved, and shipped according to the *Manual of Methods for Chemical Analysts of Water and Wastes*, U. S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268. Water for staining tests and/or concrete mixing should be sampled and shipped according to CRD-C. Procedures for submitting water for other analysis may or may not be in writing. Questions on this or any water sample submitted should be directed to the Chief, Chemistry Section, telephone (402) 221-3211 or FTS 864-3211.

c. Bituminous Materials. Bituminous materials which are fluid at all temperatures should be shipped in screw-top metal containers having a capacity of not less than one-quart. Bituminous materials which must be heated in order to make them fluid should be placed in one-quart capacity, friction-top cans similar to those used for paint, or 5 gallon crimp-top cans when larger samples are needed as for a bituminous mix design.

5. Identification of samples. After the sample of liquid material has been placed in a container in accordance with the recommendations made above, identification of the sample may be fastened thereto, using a gummed label, a heavy shipping tag, or a MRD Form 0114, Sample Identification Sheet, inserted in an envelope. The sample should then be packaged for shipping in a manner which will insure its arrival at the Laboratory in good condition. A variety of procedures may be followed which will provide adequate protection to the sample. One satisfactory procedure is as follows: the quart of liquid, which may be paint or bituminous material in a metal container or water in a glass container is placed in a gallon can and the excess space between the two cans is filled with excelsior, or other shock absorbing

material. The outside can is then placed in a cardboard container for transportation to the Laboratory. Both the outside and inside cans are sealed with a Post Office approved type of can sealer. In this method, the outside can and the packing prevent damage to the inside container which holds the sample of liquid material. Any equally satisfactory method of packaging to avoid breakage and leakage may be used.

6. Submittal. Samples should be addressed to the Director, Missouri River Division Laboratory, 420 South 18th Street, Omaha, Nebraska 68102. A signed request to perform the tests, including the cost code against which the testing should be charged, should accompany the sample or be submitted as soon as possible.

FOR THE DIVISION ENGINEER:

/s/
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Deputy Division Engineer

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